Remarks

The § 103 (a) Rejections of Claims 1-4, 10, and 11

The Examiner rejected Claims 1, 10, and 11 under 35 U.S.C. § 103 (a) as obvious over U.S. Patent No. 4,511,224 to Sitte, et al. ("Sitte" or "the Sitte patent") in view of German Patent DE 3615713 to Wolf ("Wolf" or "the Wolf patent") and U.S. Patent Application No. 2003/0024368 A1 to Fukuoka ("Fukuoka" or "the Fukuoka application"). Applicants have amended independent Claims 1, 10, and 11. Applicants respectfully traverse this rejection and request reconsideration and allowance of Claims 1, 10, and 11 as amended.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In addition, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicants respectfully submit the combined Sitte, Wolf, and Fukuoka references fail to establish a *prima facie* case of obviousness against Claims 1, 10, and 11 as amended because they fail to teach or suggest all the elements of those claims. Specifically, the three references, fail either separately or together, to suggest the incorporation of an incident light system as described in the instant specification and claimed in those claims. The claimed incident light source directs light toward a curved water surface for reflection toward the specimen in order to estimate the thickness of the sections of the specimen to be cut. This is described in paragraph 0017 of the application stating, "Incident illumination system 20 defines an illumination direction 25 that is directed toward collection pan 21. A water surface 22 forms in collection pan 21, and reflection occurs from it in as uniform a fashion as possible in order to allow clear recognition of the sections with their interference colors. From the interference colors that form, the user can estimate the thickness of the sections...In the exemplary embodiment here, water surface 22 is curved."

Applicant respectfully submits that none of the cited references teach an incident light element used to determine the thickness of specimen sections. In fact, none of the references teach or suggest any type of method for determining specimen thickness or any use for reflected light directed toward a specimen other than for merely illuminating that specimen. Applicants note the Examiner's designation of light source 17 in Sitte as a disclosure of an incident system. However, Applicants respectfully point out that Sitte gives no description of light from light source 17 reflecting off any non-specimen surface, curved or flat, let alone being used for the estimation of the thickness of a specimen section as is claimed in Claims 1, 10, and 11.

Consequently, the combined Sitte, Wolf, and Fukuoka references fail to establish a *prima facie* case of obviousness against amended Claims 1, 10, and 11 as together they fail to teach or suggest all the elements of those claims, namely the use of an incident light component to reflect light off a curved non-specimen surface to measure section thickness.

In addition, the three cited references provide no teaching or suggestion to combine three light sources in any type of microtome system in which one or more of the light sources is reflected off a curved external surface, such as the water surface of Claims 1, 10, and 11. Moreover, there is no suggestion in any of the cited references to use reflected light to provide any nonilluminating function, let alone measurement of section thickness. In this regard, Applicants note the mirror or reflector 22 disclosed in Sitte, but respectfully point out that reflector 22 is a flat, not curved, surface, that is used to only illuminate the specimen internally. Thus, the reflector-base light system in Sitte does not perform the thickness measurement function of the invention claimed in Claims 1, 10, and 11 nor is there any teaching or suggestion to adapt it to any nonilluminating function.

Therefore, the combined Sitte, Wolf, and Fukuoka references fail to establish a *prima facie* case of obviousness against Claims 1, 10, and 11 as they fail to teach or suggest all the elements of those claims and they provide no motivation to a person of ordinary skill in the art to adapt those elements to perform any nonillumination function, let alone section thickness measurement. Applicants respectfully request reconsideration and allowance of Claim 1, 10, and 11.

The Examiner rejected Claims 2 and 3 under 35 U.S.C. § 103 (a) as obvious over Sitte, in view of Wolf and Fukuoka as applied to Claims 1, 10, and 11 and further in view of U.S. Patent No. 6,195,016 to Shankle, et al. ("Shankle" or "the Shankle patent"). Applicants respectfully traverse this rejection and request reconsideration.

Claims 2 and 3 depend from Claim 1 and thus incorporate all the elements of those claims. Therefore, Claims 2 and 3 claim the invention in which light from an incident illumination system is reflected off a curved water surface and used to measure specimen section thickness. As noted above, the combined Sitte, Wolf, and Fukuoka references as applied to Claim 1 and thus Claims 2 and 3 fail to teach or suggest the use of an incident light component of a microtome system to measure specimen section thickness. In fact, similar to the Sitte, Wolf, and Fukuoka references, the Shankle patent, fails to teach or suggest any non-illuminating or other function for reflected light or any reflection of light off a curved or other type of surface. Therefore the combined Sitte, Wolf, Fukuoka, and Shankle references fail to render Claims 2 and 3 obvious as they fail to teach or disclose all the elements of those claims. Moreover, because the Shankle patent, like Sitte, Wolf, and Fukuoka, fails to teach any nonilluminating use for a light source in a microtome or ultramicrotome system, it can provide no suggestion to combine those references to render Claims 2 and 3 obvious. Applicants respectfully request reconsideration and allowance of Claims 2 and 3.

The Examiner rejected Claim 4 under 35 U.S.C. § 103 (a) as obvious over Sitte in view of Wolf, Fukuoka and Shankle as applied to Claims 2 and 3 and further in view of U.S. Patent No. 4,896,967 to Douglas-Hamilton, et al. ("Douglas-Hamilton" or "the Douglas-Hamilton patent"). Applicants respectfully traverse this rejection and request reconsideration.

Claim 4 depends from Claim 3 and indirectly from Claim 1 and thus incorporates all the elements of those claims. As discussed above, none of the previously cited references, Sitte, Wolf, Fukuoka, and Shankle, teach or suggest an incident light source that reflects light off a curve water surface onto the specimen to measure section thickness or for any other function.

Similarly, the Douglas-Hamilton patent fails to disclose a system in which reflected light is directed toward the specimen. Although Applicants note that some of the embodiments disclosed in Douglas-Hamilton teach the use of reflected light, Applicants respectfully point out that the reflected light is transmitted away from the sample (reference no. 50) before it is reflected still further away from the sample. This is seen in all the relevant figures in the Douglas-Hamilton patent. In contrast, Claim 4 claims the invention in which incident light is reflected toward a specimen. "...as beam **168** from the single LED source **162**, as collimated by the precisely positioned small source aperture **164**, is directed at the specimen contained within the specimen holder **50** supported by member **110**. A part **170** of the beam **168** represents light transmitted through the specimen, while a part **172** is scattered by the specimen." See Douglas-Hamilton, col.8, lines 51-55. Emphasis added.) Moreover, Applicants respectfully point out that all the reflective devices in Douglas-Hamilton employ flat surfaces. Like the previously cited references, the Douglas-Hamilton patent provides no suggestion or teaching directed to the use of curved reflective surfaces for any reason. Finally, the Douglas-Hamilton patent is directed to improving the image of a sample, not to improve the measurement of section thickness or other processing parameter of the sample itself. Thus, like the previously cited references, Douglas-Hamilton supplies no motivation to employ incident light to be reflected onto a specimen, nor does it suggest the use of curved reflective surfaces of any type, let alone water, because it is directed to improvement of a specimen image, not measurement of a particular part of the specimen.

Therefore, Applicants respectfully submit the combined Sitte, Wolf, Fukuoka, Shankle and Douglas-Hamilton references fail to render the invention claimed in Claim 4 obvious as they all fail to teach or suggest all the elements of Claim 4, namely a microtome or ultramicrotome system that employs light reflected off a curved surface to measure specimen section thickness. Moreover, the references together make no suggestion of any sort to employ curved reflective surfaces of any material, let alone water, for any function at all. As noted above, in order to render a claim obvious, the combined references must provide motivation to be combined to render obvious the claim as a whole. Because there is no mention of the use of curved reflective

surfaces of any type for any function, the references provide no motivation to be combined to render Claim 4 obvious. Applicants respectfully request reconsideration and allowance of Claim 4.

Conclusion

Applicants respectfully submit that the present application is now in condition for allowance, which action is courteously requested. The Examiner is invited and encouraged to contact the undersigned attorney of record if such contact will facilitate an efficient examination and allowance of the application.

Respectfully yours,

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